

# Project Design Phase

## Solution Architecture

**Date:** 02 November 2025

**Team ID:** NM2025TMID06595

**Project Name:** Calculating Family Expenses

**Team Members:** Vanitha, Kashniga, Gopika, Akila

**Maximum Marks:** 4 Marks

### Solution Architecture:

#### Goals of the Architecture:

- Provide a digital solution for efficient expense calculation and management.
- Enable automated categorization and summarization of family expenses.
- Generate visual and statistical summaries for improved financial planning.
- Ensure secure storage and retrieval of all financial records.

#### Key Components:

- Expense Entry Module (for adding and editing expenses).
- Category Management System (for grouping expenses under categories such as Food, Bills, Education, etc.).
- Budget Management and Alert Module (to monitor spending limits).
- Summary & Visualization Dashboard (to display charts and statistics).
- Database (for securely storing expense and user data).

#### Development Phases:

1. Design and set up the expense database schema.
2. Develop the expense input and category classification features.
3. Implement the dashboard for budget tracking and analytics visualization.
4. Conduct testing, validation, and prepare final documentation.

**Solution Architecture Description:**

The solution architecture for the 'Calculating Family Expenses' project is designed to streamline household financial management by integrating expense tracking, categorization, and visualization into a single, easy-to-use platform. Users can input daily or monthly expenses, which are stored in a centralized database and automatically categorized based on predefined or user-defined types. The system then computes total expenses, compares them against budget goals, and generates detailed reports and charts through the dashboard. The architecture ensures data consistency, accuracy, and security, while maintaining scalability to support additional features like predictive budgeting and multiple-user collaboration. This design promotes efficient budgeting, reduces manual errors, and empowers families to make informed financial decisions.

**Example - Solution Architecture Diagram:**

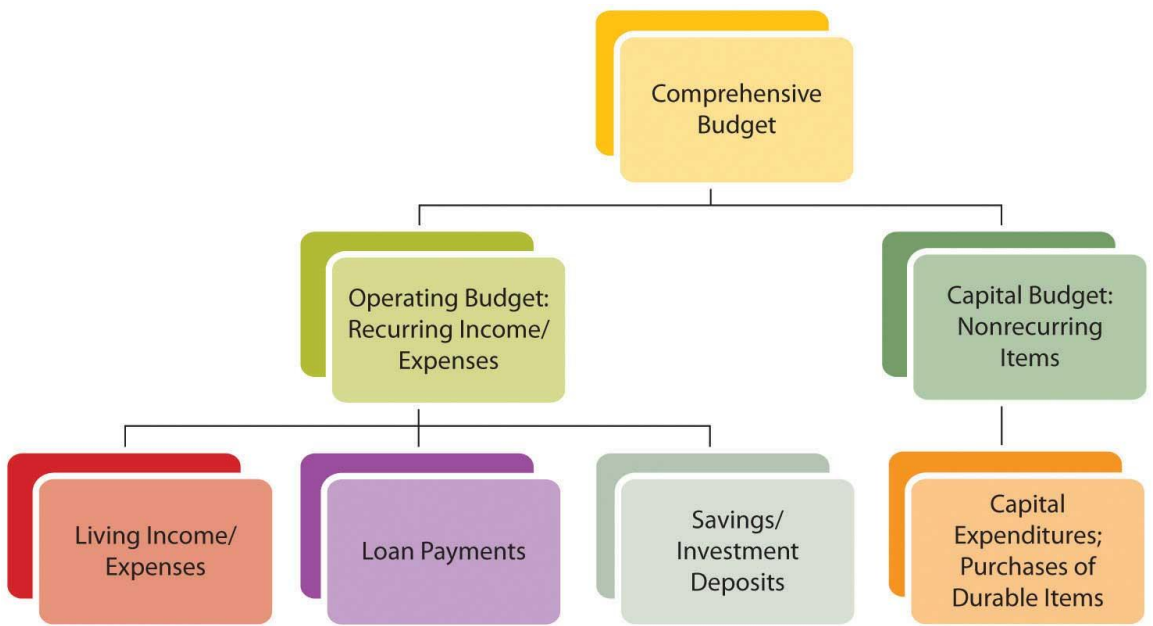


Figure 1: Architecture and data flow of the Family Expense Management System